NOTE XXIV.

CONTRIBUTIONS TOWARDS THE KNOWLEDGE OF THE ANNELIDA POLYCHAETA.

BY

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I.

AMPHINOMIDAE.

(Plate 7 and 8).

The publication of the »Reports on the Scientific Results of the voyage of H. M. S. Challenger" undoubtedly will mark an era in the history of our knowledge of the Invertebrate Animals. Never before in any voyage such a bulk of well-preserved material was collected and afterwards worked out by so many distinguished investigators. In the first place this can be stated about the *Annelida Polychaeta*, a group usually quite neglected in preceding voyages. Though in the last decennium the number of known species much increased owing to the careful investigations of Grube [1]), Marenzeller [2]), Hansen [3]), Langerhans [4]), Théel [5]), a. o., by the Report of Mr. M'Intosh on the Challenger-Annelida,

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1) Anneliden-fauna der Philippinen, Mém. de l'Acad. Imp. des Sciences de St. Pétersbourg, Tom. XXV, 1878.

2) Süd-Japanische Anneliden, Denkschr. K. Akad. d. Wissensch. Wien, Bd. XLI, 1879.

3) Annélides, recueillies par E. van Beneden pendant son voyage au Brésil etc. Mém. Cour. et d. Sav. étrang. Acad. Royale de Belgique. Tom. XLIV, 1882.

4) Die Wurmfauna Madeira's, Z. W. Z. Bd. XXXII and XXXIII, 1879—80.

5) Annélides Polychètes de Nouvelle-Zemble, Kongl. Svenska Vetensk. Akad. Handl. Bd. XVI, n° 3, 1879.

lately published, our systematical knowledge of this group is largely advanced, not only by the description of 220 species new to science, but also by his detailed descriptions and accurate figures of the essential parts of many little known species. He rightly states in his Introduction that little reliance can be placed on the description of bristles etc. without accurate representations; a good deal of the species of different authors cannot be identified on account of the vagueness of the figures or the total want of them.

Though the Leyden Museum possesses only a small collection of Annelida, for the greatest part in an indifferent state of preservation, I think it not without interest to examine them carefully, as never has been done before. I have begun to investigate the *Amphinomidae*, a family about which our knowledge is very scarce, notwithstanding Baird's Monograph [1]). Prof. A. A. W. Hubrecht favoured me also with the examination of the specimens of the Utrecht Museum.

Genus ***Amphinome*** Bruguière.

Amphinome rostrata Pallas. — Baird, loc. cit. p. 217, pl. IV, figs. 1*a*, *b*. – M'Intosh, loc. cit. p. 21, pl. I, fig. 7; pl. IV, fig. 1; pl. IA, fig. 16; pl. IIA, figs. 8—12.

I had the opportunity to examine several individuals of this species, belonging to the Utrecht Museum; the largest of them measures 175 mm. in length and has 53 segments. The characters of this species having been accurately described by M'Intosh, I have not much to say about them; it may only be added that the stout serrated bristles of the dorsal fascicle have not always two (as figured by M'Intosh) but often three or five rows of serrations.

In our collections there is a large specimen from the Indian Ocean, presented by the Paris Museum under the

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1) Contributions towards a Monograph of the Amphinomacea, Journ. Linn. Soc. Vol. X, 1870. In this paper the litterature on the different species is fully quoted.

name of *A. tetraedra* Sav.; its length amounts to 200 mm. and the number of segments is 66. It agrees in all respects with the Utrecht specimens, except that the bristles are darker coloured, brownish yellow in stead of light yellow and that the stout, straight bristles of the dorsal fascicle are quite smooth and show no trace of serrations.

By the kindness of Mr. A. A. van Bemmelen, Director of the Zoological Garden at Rotterdam, I received not long ago several *Amphinome*-specimens, found on pieces of pumice, floating in the Indian Ocean (probably from Krakatoa); it is a collection of young and adult animals, measuring in length from 5 to 125 mm. In regard to their external appearance they differ not inconsiderably from the *A. rostrata*-specimens, but they are in a too bad state of preservation to determine if they really represent a new species. The head agrees very well with that of *A. rostrata*, but the tufts of branchiae are much less developed and darker coloured as in that species; on the contrary the bristle-fascicles are much stouter. The dorsal bristles, especially those with tapered, curved tips, extend a good deal beyond the dorsal cirrus and the branchial tufts, whereas in *A. rostrata* the dorsal cirrus and the branchiae extend as far outward as the tips of the bristles. The colour of the bristles is also much darker.

Judging from an example of *A. vagans* Sav. from the Utrecht Museum, having 23 mm. in length, I am quite agreeing with M'Intosh, that it should be considered as a young of *A. rostrata.* Moreover in comparing Savigny's description of this species, it becomes obvious that he has been mistaken in describing it. According to his description *A. rostrata* should be characterized by having the bristles of the ventral fascicle »terminées par un petit renflement conique ou globuleux que surmonte une sorte de pointe très-courbée", whereas those of *A. vagans* should be »sans renflements." No doubt this description was based on partly disorganized bristles, due to insufficient preservation. In examining our Amphinomidae I often met with bristles, showing some parts irregularly thickened and others dissolved in fibres. The ventral bristles of *A. rostrata* are furnished at the tip with a dark brown point, placed like a cap on the summit of the bristle; beneath this tip, having undoubtedly more resistance, the bristle shows often the herefore described alteration of its structure. Our specimen from the Paris Museum shows the same phenomenon, resembling the bristles, figured on pl. 8 *bis*, fig. 1 *b* and *c* in Cuvier's Règne animal. The form mentioned by M'Intosh under the name of *A. vagans* 1) was afterwards recognized by him to be the *Eurythoë borealis* of Sars 2). I regret to be unacquainted with the description and figures of *A. vagans*, given by Kinberg in the »Fregatt. Eugen. Resa"; most of the copies of this work seem only to contain 8 plates, with illustrations of the *Polynoidae*.

Amphinome longosetosa, n. sp. (Pl. 7, fig. 16; Pl. 8, figs. 1—5).

I found in our collection a bottle containing two *Amphinome*-specimens, which are strikingly distinguished by the enormous length of their capillary bristles. In other respects they agree so much with *A. rostrata*, that I hesitated a long time to consider them as a distinct species. I first supposed that it should perhaps be a sexual variation and represent an epitocous form; but as we have a large and a small specimen showing this character, and I cannot find any notice about such bristles in the different authors, I have given up my supposition.

The large specimen measures 200 mm. in length, its greatest breadth is 20 mm. and the number of segments amounts to 68; the small one has only a length of 100 mm. and is 9 mm. broad.

The entire surface of the body is coarsely rugose, showing

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1) On the structure of the British Nemerteans and some new Brit. Annelids; Trans. R. Soc. of Edinburgh, Vol. XXV, 1868—69, p. 406, pl. XV, fig. 1.

2) On British Annelida, Trans. Zool. Soc. vol. IX.

small irregular areas; on the ventral side there is a shallow, median, longitudinal groove. The 2nd segment is furnished on its dorsum with a transverse row of prominent warty rugae. The tongue-shaped caruncle terminates at the hinder margin of the first segment; it is attached along the middle, the edges being free. The median unpaired tentacle, bend backward, not extends to the hinder end of the caruncle; the paired tentacles are a little shorter, about as long as the palpi. Each foot bears a rather long, conical dorsal cirrus; the ventral cirrus is short. The branchiae commence on the 3rd body-ring; they arise from the posterior part of the dorsal bristle-papilla with a short broad stem, dividing in several secundary branches, which give rise to a dense bush of filaments. On the first branchiferous segment the branchiae approach each other on the middle of the dorsum, but on the following segments they are separated by a large distance until the beginning of the posterior third of the body, where they meet again and farther cover the whole dorsal side, except in the region of the anus, a wide oval opening, embracing nearly 10 segments. The upper border of the dorsal bristle-papilla is fringed at the anterior side, opposite to the cirrus.

Besides the normal bristles of *A. rostrata* we find here in the dorsal fascicle the slender capillary bristles, above referred to, exceeding the ordinary bristles often five times in length. We can distinguish four kinds of them: *a.* stout dark brown bristles, very thick at their base, tapering to the tip and beset over their whole length with large, widely distant spines, growing longer and thinner near the distal end of the bristle; some of them measure 27 mm. in length and have near their base a diameter of 0,09 mm. — *b.* light brown bristles, with a thick fusiform base, the tip tapering to a fine point; they possess alternate spines, decreasing not much in length from the distal end to the base. — *c.* slender white bristles, fusiform at their base, tapering to the tip, which is furnished with long, densely crowded, alternate setae, forming a kind of plume; downwards those setae diminish gradually in length and pass into short spines. — *d.* rare, brown bristles, regularly beset over the whole length with several rows of short, fine hairs.

The only bristles, as far as I know, showing any resemblance with those of *A. longosetosa*, are the bristles in the dorsal fascicle of the genus *Iphione.*

Genus **Hermodice** Kinberg.

Hermodice caruncalata Pallas. — Baird, loc. cit. p. 219, pl. IV, figs. 3 *a* and *b.* — M'Intosh, loc. cit. p. 24, pl. V; pl. IIIA, figs. 1—4.

Two small specimens, in a bad state of preservation, procured from Curaçao by the care of Mr. Neervoort van de Poll.

The alternate arrangement of the dorsal bristle-tufts is very striking. The bristles quite agree in their structure with the figures given by Baird and M'Intosh, not with those of Langerhans [1]); only in some of the ventral bristles the spur is totally wanting and there is no trace of bifurcation. Among these ventral bristles there are a few hastate spines, resembling those of *Eurythoë.*

Genus **Eurythoë** Kinberg.

Eurythoë alcyonia Sav. (Pl. 7, figs. 1—9). — Savigny, Système des Annélides, p. 62, pl. II, fig. 3. — Baird, loc. cit. p. 222.

The body is flattened, with the greatest breadth in the middle, gradually diminishing anteriorly and posteriorly; a groove runs along the ventral side. The cephalic lobe is broad in front, notched, bearing on its lateral and its dorsal side a pair of tentacles which, stretched forward, pass a good deal beyond the front-side of the lobe; the median, unpaired tentacle, situated exactly in front of the caruncle,

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1) Loc. cit. pl. XIV, fig. 8 *a* and *b.*

is much thinner and shorter than the foregoing and extends only in some specimens to or a little beyond the anterior margin of the cephalic lobe. There is a rather thick, tongue-shaped caruncle, faintly lobated at its base by five notches; it extends only over three segments, but in some individuals impinges a little on the fourth body-ring. At the ventral side the cephalic lobe is divided by a median groove in two wedge-shaped portions, with a rounded frontal margin. The mouth is surrounded: in front by the under-end of the wedge-shaped lobes, laterally by the basal part of the 2nd and 3rd segment, behind by the median part of the anterior margin of the 4th segment. The buccal segment does not participate in bounding the mouth-opening, its basal part extending only to the middle of the lateral side of the cephalic lobe. The anus is a longitudinal fissure, between two flat walls, occupying the dorsum of five terminal segments; it has posteriorly a knob-shaped papilla. The feet consist of two bristle-papillae, separated by a rather large distance from each other; each papilla is furnished with a strong cirrus. The dorsal cirrus is somewhat longer than the ventral one, but does not extend to the distal end of the bristle-tuft. The dorsal bristles are arranged in thick tufts, about as long as half the breadth of the dorsum; they consist of: *a.* a few stout, simple, slightly curved bristles; — *b.* a large group of slender bristles with slightly bifid tip, one of the divisions being a mere spur, while the other is extremely elongated and tapering, about once and a half as long as the corresponding part of the two slender ventral bristles; they are faintly serrated, but the serrations are so indistinct, that I first quite overlooked them; — *c.* several stout, straight, harpoon-shaped bristles, serrated on the edge; — *d.* some slender, hastate spines. The tips of the second type of bristles are white, vitreous, the other bristles being horny-yellow, with a granulated marrow, like in the hairs of mammals. The ventral bristles are bifid, the majority with short, stout tips, slightly enlarged below the bifurcation, without any serration; there is only a pair of them, having slender shafts, with elongated tips, twice and a half as long as the others, faintly serrated along their outer half.

There are hastate spines, as in the dorsal fascicle.

The branchiae commence on the second body-segment, each as a small comb-like notched organ; backwards however they present a considerable tuft of slightly divided processes, chiefly after a dichotomous type.

Colour of the body slate-blue; bristle-tufts dark brown.

Eurythoë alcyonia, for the first time described and illustrated by Savigny, was based upon a small specimen (50 mm.) from the Gulf of Suez. We have five specimens also from the Red-Sea, collected near Djeddah by Mr. Kruyt, agreeing very well with Savigny's description; therefore I believe them to be identical with this species, though Savigny gives no detailed description of the bristles and speaks of the undulated margin of the caruncle, which I do not find, but which is probably due to indifferent preservation. The longest of these examples measures 110 mm., and has 90 segments.

Moreover I examined several specimens from the Indian Ocean, collected by Reinwardt, Macklot, Kuhl & van Hasselt, and one individual from Amboina, forwarded by Mr. Hoedt. All these specimens quite agree in the structure of their bristles with the examples from the Red-Sea, only the tips of their bifid ventral bristles appear to be a little more slender than in the last specimens. In some of them the caruncle does not extend on to the fourth segment and the unpaired tentacle, though shorter than the paired lateral ones, reaches to or passes beyond the frontal margin of the cephalic lobe. However I believe they are belonging to the same species, perhaps to a variety. One specimen has a length of 280 mm., with a breadth of 14 mm.; the number of segments is more as 136.

The *Amphinome indica* of Schmarda¹) may also be identical with this species.

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1) Neue Wirbellose Thiere. Bd. I, 2, 1861, p. 142, Pl. XXXV, fig. 294.

Eurythoë pacifica Kinb., described exactly by M'Intosh, is distinguished from the foregoing species by having its stout ventral bristles serrated on the inner margin; however it seems to me not without doubt that this difference should be sufficient to separate the two species.

Genus ***Pherecardia*** Horst, (n. g.)[1].

Body long, with numerous rectangular segments, like in *Eurythoë*. Head-lobe with an unpaired tentacle, two paired tentacular cirri and a pair of palpi; caruncle extending over three segments, consisting of a median, heart-shaped portion, which bears on each side several folded lobes. A tuft of short, cylindrical, branchial filaments behind the dorsal bristle-papilla of each body-ring. Bristles of the ventral fascicle slender, not furcated; bristles of the dorsal fascicle: some capillary, others stouter, smooth or serrated.

Pherecardia lobata, n. sp. (Pl. 7, figs. 10—14).

Among the Annelids of the Utrecht Museum I met with a specimen, so strikingly distinguished from the known *Amphinome*-species by the structure of its caruncle and bristles, that I thought it necessary to make a new genus for it. On account of the unsufficient state of preservation, especially of the head, I cannot enter into all the characters of the animal as minutely as should be desirable.

The body measures 92 mm. in length and the number of its segments amounts to 66; but it is imperfect, for it wants some of the posterior rings. The greatest breadth is 9 mm. The body is flattened, marked on its dorsal side with faint longitudinal folds; on the ventral side there is a shallow, median, longitudinal groove. In its anterior half the body has nearly the same breadth, but towards the hinder end it becomes gradually narrower. The

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[1] Derived from φέρειν, to bear and καρδία, heart.

caruncle extending over the three anterior segments, consists of a median and a lateral portion. The median part resembles much the caruncle of *Amphinome;* it is a tongue-shaped organ, broad and cordate in front, narrowing backward. It bears on each side 7 lamelliform lobes, which are folded on both sides and show a gradual decrease of length from the first to the last. The head is furnished with an unpaired tentacle, situated in the notch of the caruncle, and with two short tentacles placed in front of it; there are also two palpi agreeing in length with the tentacles. The mouth is surrounded by the ventral sides of the four anterior segments. The branchiae commence on the first body-ring and are about equally developed over the whole length of the body; they consist of a few short stems dichotomously branched and dividing in a dense tuft of short, thick, cylindrical filaments. The branchial tuft is situated at the posterior side of the dorsal bristle-papilla and is almost entirely hidden by the bristle-fascicle, but it projects somewhat as well on the dorsal as on the ventral side. The dorsal cirrus is long and consists of a subulated basal segment and a longer, slender terminal portion; the ventral cirrus is short. The dorsal bristle-fascicle extends a little beyond the corresponding cirrus and consists of: *a.* numerous, fine, capillary bristles; — *b.* some stouter, smooth bristles and — *c.* others, which are serrated along one side; those serrations, in a surface view, have the shape of an Y. The ventral bristle-tuft is not so developed as the dorsal one; its bristles are not very stout, rather long; they are furnished with a short terminal portion, forming an obtuse angle with the shaft.

There are stout hastate spines like in *Eurythoë.*

Habitat unknown.

Genus ***Chloeia*** Savigny.

Chloeia flava Pallas. — Baird, loc. cit. p. 230. — M'Intosh, loc. cit. p. 8, pl. III, figs. 1 and 3; pl. IA, figs. 7—9.

Of this species our Museum possesses three specimens from Japan, collected by von Siebold, one specimen from Banka by Vosmaer; moreover I examined several fine specimens from the Utrecht Museum. The largest example measures 130 mm. in length and has 41 segments; the smallest one is 70 mm. long and has only 34 rings.

They agree almost in all respects with M'Intosh's detailed description. The breadth of the body and therefore its more or less ovoid appearance however is not only determined by the bristles, as suggested by M'Intosh, but seems to be liable to some variation; f. i. in a specimen of 100 mm. the breadth amounts to 25 mm., whereas in the smallest example it is only 14 mm. I found the unpaired tentacle not longer than once and a half the length of the pair in front of it. The dorsal bristles of the anterior segments are furnished with a well-developed spur and with 6—8 serrations along the opposite edge, but the longer bristles of the middle and hinder end of the body, in variance with M'Intosh's assertion, usually want this spur totally and are only somewhat enlarged on that point; their tip is provided with large recurved fangs.

Chloeia parva Baird. — Baird, loc. cit. p. 233, pl. IV, figs. 8*a*, *b*.

Among the Amphinomidae of the Utrecht Museum I met with an example, agreeing so much in several respects with Baird's description of *Chl. parva*, that I believe it to belong to the same species, though our specimen measures 90 mm. and is much larger than that of the British Museum, the latter having only 1 inch in length. The shape of the body is not ovoid, but elongate, narrower than in *Chl. flava* Pall.; its breadth in the middle of the body is only 12 mm. The bristles are also less developed than in the last-named species, especially those of the dorsal fascicles. The number of segments amounts to 36. The branchiae commence on the 4th body-ring; they are violet, spotted with black on the posterior side. The caruncle seems to extend to the 4th segment, but it could not be very well maked out, on account of the bad state of preservation of the specimen. Each segment has on its dorsum in the middle line a longitudinal dark violet stripe, and connected with its hinder end there are two curved lines, like the arms of an anchor, of the same colour; on the anterior segments these curved lines coalesce with the transverse band in front of the bristle-papilla, which occurs also in *Chl. flava.* Moreover there is a similarly coloured line behind the bristle-papilla, from the base of each branchia to the ventral fascicle. The dorsal cirrus is blackish and extends beyond the bristle-tuft. The bristles of the dorsal fascicle consist of a horny-yellow shaft and a transparent, vitreous tip; there is a boundary visible between these both divisions, as if the tip was joined on the extremity of the shaft. These bristles are furnished with fang-like serrations, but they are not bifurcated; only those of the anterior segments are furnished with a small spur, but want the teeth. The ventral bristles are slender, capillary, with short bifurcated tip, agreeing with Baird's figure.

Genus **Notopygos** Grube.

Notopygos crinita Grube (Pl. 8, figs. 6 and 7). — Baird, loc. cit. p. 228. — Grube, loc. cit. p. 7.

I examined four examples of this species, one from Amboina, collected by Ludeking, and the three others belonging to the Utrecht Museum; of the latter the locality is unknown. These specimens agree so well with Grube's description of *N. crinita*, that there can be no doubt in regard to their connection with that species. As there however rains a good deal of incertitude about the different species of *Notopygos* and the allied genus *Lirione*, even about the last genus itself, I will try to complete Grube's description in some respects.

The specimens measure respectively 50, 30 and 25 mm.; the number of segments is 29—30. The ultimate segment is very small and was probably overlooked by Grube; it bears the two short, stalk-shaped cirri, which terminate in a globular bud. The body is elongate, with its dorsal side plane; the ventral side is very convex, and marked with a shallow longitudinal groove. On the dorsum of each segment there is an area, having the shape of a triangle, the base of which is formed by the frontal margin of the segment whereas the tip lies on its middle; from the middle of the base of the triangle rises a short line, soon bifurcating in two other lines running to the middle of the lateral sides of the triangle; in this way the triangular area is divided in three smaller ones, an apical and two basal areas. A dorsal median groove, mentioned by Grube, I could not find out. The anal opening is situated on the tip of a papilla, on the posterior half of the 22nd segment; however in the smallest specimen it lies on the 23rd ring, whereas according to Grube it should be placed between the 21st and 22nd ring. It is strange that neither M'Intosh [1]) nor Haswell [2]) mentions anything about its situation.

The bristle-fascicles are increasing in length towards the end of the body, except in the largest specimen. Each dorsal fascicle is surrounded at its base by a semilunar violet band; a violet stripe also occurs along the anterior dorsal cirrus of the 2nd, 3rd and 4th ring. The unpaired tentacle is somewhat shorter than half the length of the caruncle. The caruncle is connected with the 4 anterior segments and impinges with its posterior tip on the 6th ring. The branchiae commence on the 5th segment. Each tuft consists of three main stems, an anterior, a posterior and a lateral one, divided in its turn in several short, thick threads, the number of which increases towards the body-end. In regard to the bristles I can add, that in three specimens they are quite smooth, without

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1) Loc. cit. p. 17.

2) On six new species of Amphinomidae, Proc. Linn. Soc. of N. S. Wales. Vol. III, 1879, p. 343.

any serration, whereas in the largest specimen the dorsal as well as the ventral bristles possess three or four faint serrations near the tip of the longer process; from this fact it becomes obvious that not too much reliance can be placed on the presence or absence of such faint serrations and that this character is not of so great importance for distinguishing the species. I believe that an error has crept into the description of Kinberg, who asserts that the genus *Notopygos* should have serrated bristles. From the preceeding remarks it results, that Kinberg's assertion that the genus *Lirione* should be distinguished from *Notopygos* by having smooth bristles, cannot longer be maintained, and I am inclined to agree with Grube's supposition that the genus *Lirione* and *Notopygos* may be identical or based upon younger and older individuals of the same species.

Genus ***Hipponoë*** Audouin & M. Edwards.

Hipponoë Gaudichaudi Aud. & M. Edw. — Baird, loc. cit. p. 239. — M'Intosh, loc. cit. p. 30, pl. I, fig. 5; pl. IV, fig. 3; pl. IIIA, figs. 13—17.

Several individuals of this species we owe to the kindness of Dr. P. P. C. Hoek, who found them concealed in the valves of *Lepas fascicularis* from the North Pacific. They agree rather well with M'Intosh's description, except in a few points. The unpaired median tentacle does not project as far backward as the middle of the second body-ring, but extends only a little beyond the anterior margin of that segment. In all our specimens the branchiae commence on the third body-ring, quite like in the form from Port-Jackson, described and figured by Audouin and M. Edwards [1]) and I believe that M'Intosh has been mistaken in mentioning them to commence on the fourth segment. On the inner-side of the fleshy margin, surrounding each ventral bristle-fossa, I find a papilla, which

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1) Annal. Sc. Nat. T. XX, 1830, p. 156, pl. III, fig. 4.

corresponds no doubt to the ventral cirrus of other Amphinomidae.

The largest specimen measures 24 mm.; its number of segments amounts to 34. The worm, found by Fritz Müller between the valves of *Lepas anatifera*[1]), certainly was a species of the genus *Hipponoë*, perhaps *H. Gaudichaudi.*

Genus ***Euphrosyne*** Savigny.

Euphrosyne laureata Sav. (Pl. 7, fig. 15; pl. 8, figs. 8 and 9). — Savigny, Système des Annélides, p. 63, pl. II, fig. 1. — Baird, loc. cit. p. 236. — Grube, loc. cit. p. 11.

This species was for the first time described and splendidly illustrated by Savigny after a specimen from the Red-Sea, where it seems to be very common; afterwards a single specimen was collected by Semper on his voyage to the Philippines. I believe that a worm, forwarded to our Museum by Mr. Wienecke from Timor, is identical with the same species. It is to regret that neither Savigny nor Grube has given us any illustrations of the bristles of this animal. Our specimen measures 30 mm. in length and its greatest breadth is 10 mm. The bare space between the branchiae on the middle of the dorsum is 5 mm. broad; the number of segments amounts to 36. The caruncle is connected with its base to the four anterior segments and impinges a little on the fifth ring, as figured by Savigny; however according to Grube's description it should be attached to 5 segments and extend to the sixth. The number of branchiae in one series is usually 7, but sometimes I counted 8, another small one being situated at the external end of the series. As is known, this species is especially characterized by having the row of dorsal bristles much shorter than the series of branchiae. In our specimen that

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1) Für Darwin, p. 30.

row extends a little beyond the third internal branchia.

There are two kinds of bifurcated bristles. Those of the ventral fascicle and the greatest part of the dorsal row are smooth; the longest limb of their fork is slightly bent backward and about three to four times longer than the spur. The ventral bristles are smaller than the dorsal ones and measure only two thirds of their length. Besides these I found in the dorsal row a second kind of serrated bristles, consisting of a shaft much more slender than in the foregoing, the fork being however much stouter. The longest limb of the fork is slightly bent over the inferior two thirds of its length; the concave side of this portion seems to be hollowed out and is furnished with parallel, rib-shaped serrations, rightly compared by Ehlers with the teeth of a file. In this concave side of the long limb fits the club-shaped short limb, which has not quite half its length; its convex side is also furnished with serrations corresponding to those of the long limb. These bristles are mentioned neither by Savigny nor by Grube, but I believe they overlooked them, being much smaller than the other bristles. Similar bristles are described by Haswell in *E. Mastersii* 1).

Euphrosyne mediterranea Grube. — Baird, loc. cit. p. 237. — Grube, Beschreibung neuer oder wenig bekannter Anneliden, 6er Beitrag; Archiv f. Naturg. 1863, p. 37, pl. IV, fig. 2.

Three small individuals, collected by Cantraine in the Mediterranean, are apparently referable to this species. Though Grube says that there are 7 branchiae in each series, I find 8 of them, two inward and six outward from the second dorsal cirrus, but I believe with M'Intosh such a discrepancy of little importance. The branchiae are not very ramose and the tips of the branches not foliate, only somewhat club-shaped. There are two kinds of bifid bristles.

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1) Loc. cit. p. 346.

Those of the ventral fascicle and a great part of the dorsal one have the limbs of the fork smooth, resembling much those of *E. capensis* figured by M'Intosh, loc. cit. pl. IA, fig. 3, only with the spur a little longer. Besides these the dorsal row contains serrated bristles, quite similar to those of *E. borealis*, figured by M'Intosh, loc. cit. pl. IA, fig. 4. No doubt these serrated bristles were overlooked by Grube, like he did in *E. laureata.* In Ehlers' *E. racemosa* [1]) the branchiae seem to be more branched; however I believe Claparède [2]) was quite right in considering this species synonymous with *E. mediterranea* and with the little-known *Lophonota Audouinii*, described by Costa [3]).

Explanation of the plates.

Plate 7.

Fig. 1. Dorsal view of the anterior end of *Eurythoë alcyonia* Sav., from the Indian Ocean. × 3 diam.
» 2. Ventral view of the same.
» 3. Ventral bristle of a Red-Sea-specimen of the same species.
» 4. Ventral bristle of a specimen from the Indian Ocean of the same.
» 5. Elongated bifid ventral bristle of the same.
» 6. Stout hastate spine of the ventral fascicle of the same.
» 7. A long, slightly bifid dorsal bristle of the same.
» 8. Simple, slightly curved dorsal bristle of the same.
» 9. A stout, serrated dorsal bristle of the same; this bristle, like all the foregoing are taken from the 48th segment.
» 10. Dorsal view of the anterior extremity of *Pherecardia lobata* Horst. × 4 diam.
» 11. Hastate spine of the ventral fascicle of the same.
» 12. Ventral bristle of the same.

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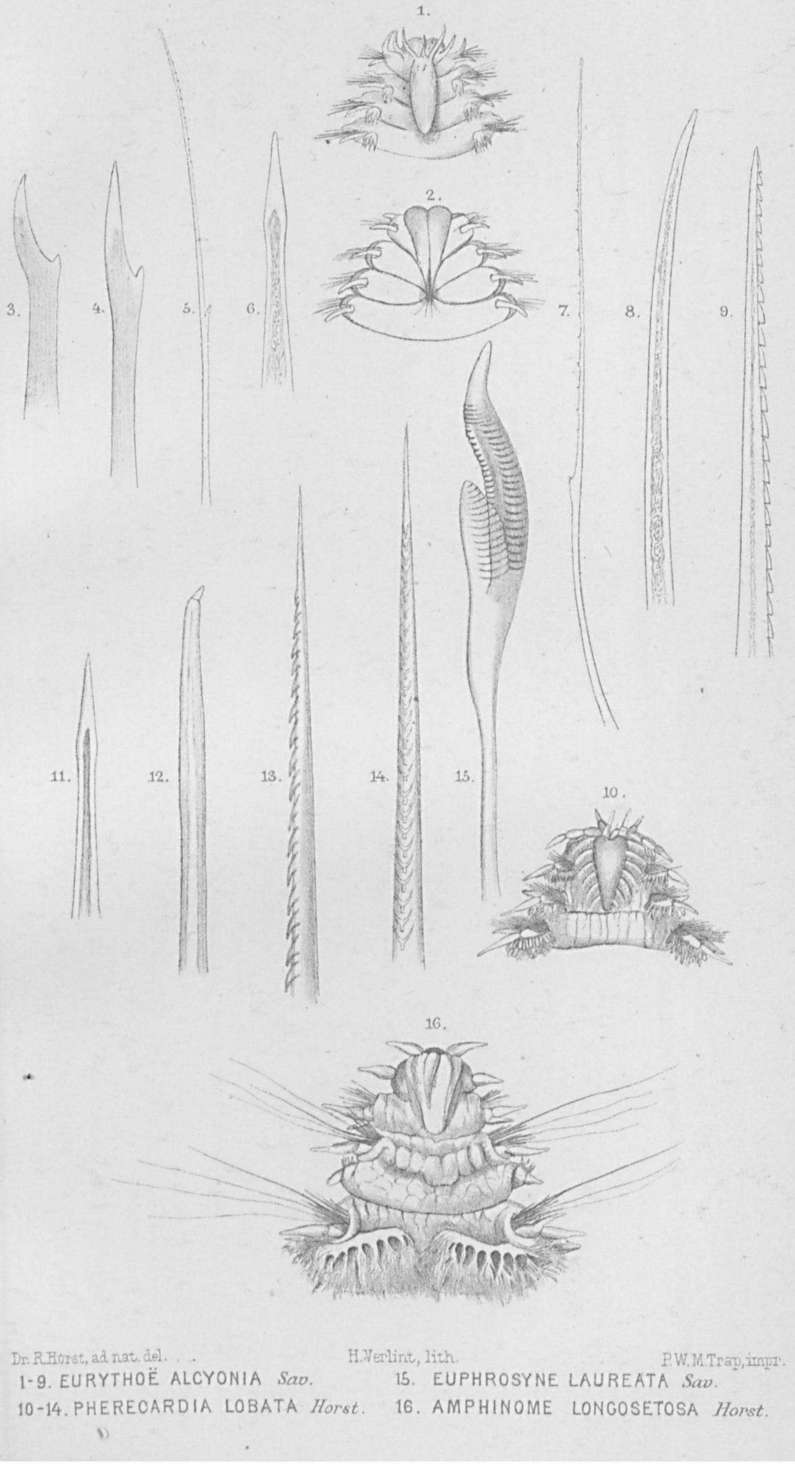
1) Borstenwürmer, p. 67, pl. I.
2) Annél. Chétop. du Golfe de Naples, p. 418, pl. IX, fig. 8.
3) Ann. Sc. Natur. Tom. XVI, 1841, p. 270, pl. XIII, fig. 1.

Fig. 13. Lateral view of a dorsal serrated bristle of the same.
» 14. Surface view of the foregoing, to demonstrate the shape of the serrations.
» 15. Serrated, bifid bristle of the dorsal series of *Euphrosyne laureata* Sav.
» 16. Dorsal view of the anterior end of *Amphinome longosetosa* Horst. × 5 diam.

Plate 8.

Fig. 1. Serrated dorsal bristle of *Amphinome longosetosa.*
» 2. Tip of kind *d* of long dorsal bristles of the same.
» 3. Tip of kind *b* of long dorsal bristles of the same.
» 4. One of kind *c* of long dorsal bristles of the same.
» 5. Tip of kind *a* of long dorsal bristles of the same.
» 6. Bifid ventral bristle of *Notopygos crinita* Grube (adult animal).
» 7. Bifid dorsal bristle of the same species (young animal).
» 8. Dorsal bristle of *Euphrosyne laureata* Sav.
» 9. Ventral bristle of the same species.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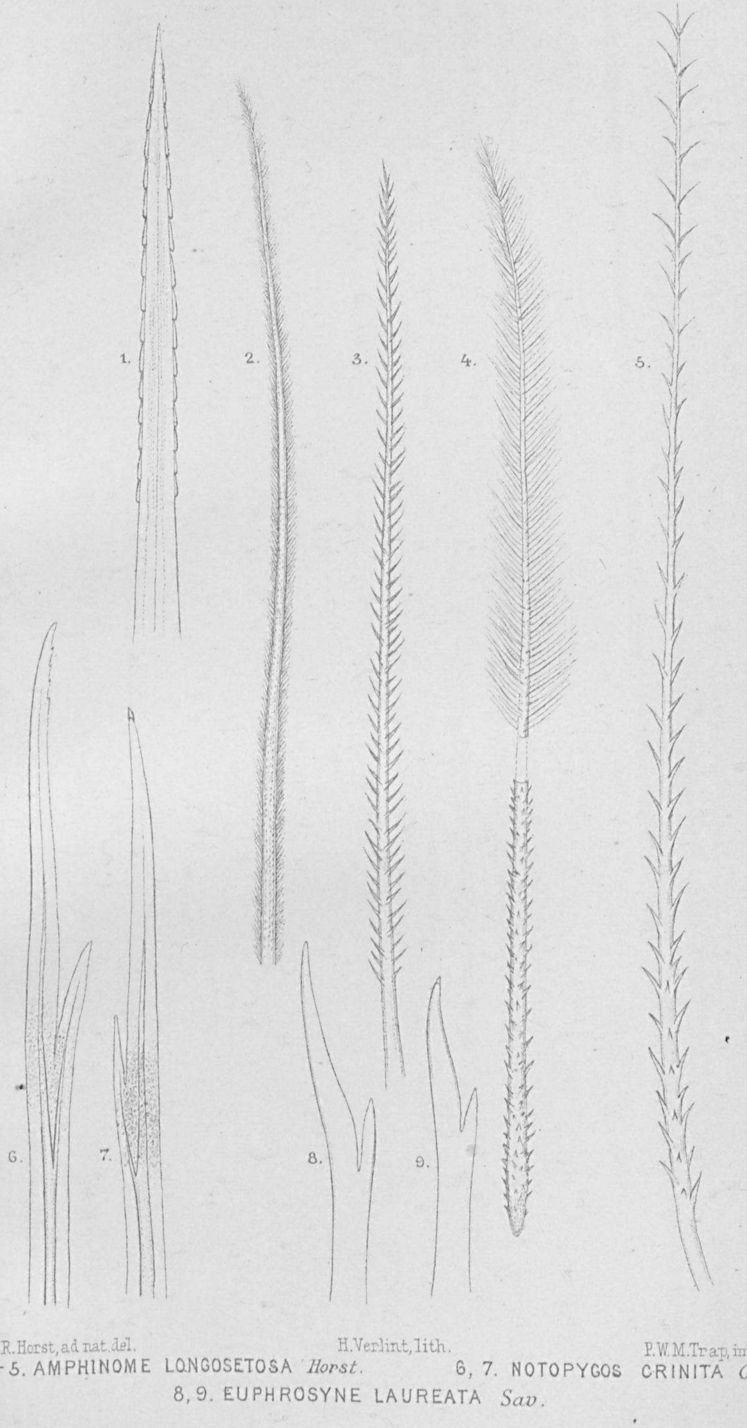
1-9. EURYTHOË ALCYONIA *Sav.* 15. EUPHROSYNE LAUREATA *Sav.*

10-14. PHERECARDIA LOBATA *Horst.* 16. AMPHINOME LONGOSETOSA *Horst.*



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1-5. AMPHINOME LONGOSETOSA *Horst.* 6, 7. NOTOPYGOS CRINITA *Gr.*

8, 9. EUPHROSYNE LAUREATA *Sav.*